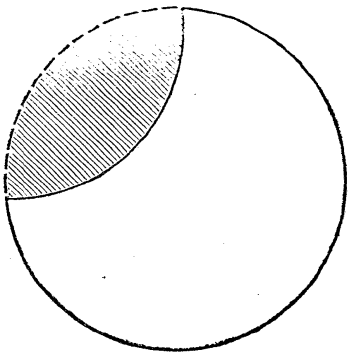
lessening in intensity to what would very nearly be the Sun's circumference, as indicated in the annexed diagram in which the dotted line shows its limit.

It is very clearly shown in one or two of the longer exposed plates, and at first strongly suggested the idea of a subjective phenomenon. I think, however, it is really due to that form of photographic defect distinguished from "irradiation" by the term "halation," and referred by Lord Lindsay and Mr. Ranyard to reflection from the back of the plate. It is peculiar that it should be convex and not concave in form, and that it should



not more plainly accompany the outer edge of the Sun. It must, however, be remembered that these pictures are, except as respects the Sun's visible disk, necessarily under-exposed; and that the Moon's limb on the Sun presents a much darker background on which such halation would be detected than the adjoining sky.

I may, I think, venture to add that all the foregoing phenomena are yet not entirely and perfectly understood, and fairly merit further attention as having an important bearing on celestial photography.

Guildown, Guildford;
1881, *March* 3.

Observations of the Red Spot on Jupiter. By J. Tebbutt, Esq.

I have observed several transits of the well-known Red Spot in *Jupiter's* southern hemisphere across the central meridian of the planet with the $4\frac{1}{2}$-inch Equatoreal. Two methods of observation have been employed: one with the aid of a position-micrometer, and the other by simple estimation of the time when the preceding end, the middle, or the following end, of the spot was equidistant from the visible eastern and western limbs of the planet. The micrometer method was as follows. The reading of the moveable screw for coincidence of the declination wires being obtained by contacts on each side of the fixed wire, the micrometer was revolved so as to bring the close transit-threads

parallel to the planet's belts. The declination wires were then separated till one of them coincided with the planet's eastern limb and the other with the western. In this way a determination of the equatorial diameter of the planet was obtained uncorrected for defective illumination. The wires being then set to half the measured diameter, the western wire was brought on the corresponding limb of the planet, and the eastern wire assumed to bisect perpendicularly the visible equatorial diameter. The wires being retained in this position, the transits were observed over the latter wire. Immediately on noting the coincidence of each part of the spot with the bisecting wire the position of the wires was changed by bringing the eastern wire on the planet's corresponding limb, and the western wire became thus in its turn the bisecting wire. The observed parts of the spots being again found coincident with the bisecting wire, the observations were regarded as verified. It will be seen that my estimated times of transit are in every instance later than those noted with the aid of the micrometer. The micrometer, which is the work of Messrs. Cooke and Sons, of York, the makers of the telescope itself, appears to be an excellent one as regards the screws, the value of one revolution being $29''\cdot717$. Each wire, however, I find from numerous observations to be about $1''\cdot2$ in thickness.

I have given the observed transits to the nearest tenth of a minute of local mean time, as it is impossible to observe with anything like precision. The impossibility of doing so is obvious from the recorded results of other observers.

Date of Transit.	Magnifying Power.	Transits, per Micrometer. Preceding End.	Middle.	Following End.	Transits, per Estimation. Preceding End.	Middle.	Following End.
1880.		h m	h m	h m	h m	h m	h m
Oct. 31	180				8 35·6	8 58·3	9 28·6
Nov. 2	180				10 6·4	10 34·4	11 2·4
7	180				9 19·8	9 41·9	10 12·0
10	187	6 30·4	6 58·6	7 35·8	6 41·6	7 5·6	7 41·3
15	55				6 0·7	6 25·0	6 49·2
17	187	7 21·8	7 48·3	8 14·8	7 30·0	7 56·3	8 25·3
24	187	8 8·6	8 35·7	9 3·4	8 16·9	8 44·4	9 8·7
Dec. 1	187	8 54·3	9 19·7	9 49·3	9 0·0	9 24·8	9 53·3
4	180				6 37·9		7 26·3
10		11 12·6	11 45·1	12 17·1	11 20·9	11 49·5	12 19·6
18	187	7 55·9	8 23·7	8 52·2	8 0·4	8 28·9	8 54·7
30					8 0·2	8 22·5	8 47·7

Observatory, Windsor, N.S. Wales:
1881, *January* 28.